Office of Pollution Prevention and Toxics
Questions and Answers About Vermiculite and Asbestos

Vermiculite and Asbestos

Q: Why was the 1982 MRI report on the characteristics of vermiculite samples for fiber and asbestos content initiated?

A: It was initiated in response to the TSCA section 8(e) notice of substantial risk sent to EPA in 1978 by O. H. Scott, Inc. which indicated there were health problems experienced by their employees who were processing asbestos-contaminated vermiculite.

Q: What were the findings of the 1982 MRI report?

A: Based on the air and bulk samples associated with vermiculite ore and processed vermiculite taken at four major U.S. vermiculite mines, the results suggest that the dust samples collected at the Libby mine were very high in amphibole (a class of naturally occurring silicate minerals some of which can become fibrous) content and indicated that considerable asbestos is removed from the vermiculite during ore processing (beneficiation). The levels were substantially less for the mines in South Carolina. Asbestos fibers were less than 1% of the total mass after beneficiation.

Q: Why did EPA initiate the 1985 Versar exposure assessment?

A: It was initiated to review the data compiled in the 1982 MRI report to make a determination as to whether vermiculite should be included in the proposed Asbestos Ban and Phase-out rule.

Q: What were the findings of the 1985 exposure assessment?

A: The 1985 Versar exposure assessment for asbestos in vermiculite used the data from the 1982 MRI report. The assessment included occupational, consumer and general population estimates of exposure. Since definitive data were lacking, the only conclusions reached were that there was asbestos exposure in the mining, milling, exfoliation, transport, and use of vermiculite. No risk calculations were included in the report.

Q: What did EPA do with these two final reports?

A: Since the 1982 MRI report was not an official EPA publication, it was likely distributed only to the interested parties within the Agency and others such as: OSHA, NIOSH, and MSHA. As part of EPA's standard distribution plan for official EPA publications, the 1985 report was mailed to the ten EPA regional offices, mailed to EPA libraries, and given to the National Technical Information Service (NTIS) which cataloged it and made it widely available through their organization. In addition, it was shared with other federal agencies who were looking in to the

problem including OSHA, NIOSH, and MSHA.

Q: Why wasn't the unintentional mining of asbestos with mining of another substance such as vermiculite covered by the proposed Asbestos Ban and Phase-out rule in 1986?

A: At that time, it was determined that any attempt to cover the unintentional mining of asbestos under the rule would considerably complicate the operation of the rule and potentially make it unworkable.

Q: Are there potentially other sites out there like the situation in Libby?

A: Yes, there is a potential for asbestos contamination at any other vermiculite mine site, or any other mining, quarrying or similar commercial activity which disturbs asbestos-containing rock, but our data to date, indicates the asbestos levels at other vermiculite mines were significantly lower than at the Libby mine site.

Q: What is EPA doing (going to do) now?

A: Currently OPPT and EPA regional offices are updating lists of producers, processors and exfoliators of vermiculite; updating the history of the Libby mine and various government agencies involvements; conducting a literature search on vermiculite and other ores containing asbestos; and determining current asbestos levels of asbestos containing materials in the environment through additional sampling and analysis. This effort includes vermiculite products and construction materials. In addition, EPA's regional office in Denver is sampling homes, schools, and ambient air in Libby as well as offering health screenings to the residents.

Asbestos Ban and Phase-out Rule, 1989

Q: What uses were allowed and banned by the 1989 Asbestos Ban and Phase-out Rule?

A:

Uses allowed under the final rule:

-acetylene cylinders
-arc chutes
-asbestos diaphragms
-battery separators
-high-grade electrical paper
-missile liners
-packings
-reinforced plastic
-sealant tape
-specialty industrial gaskets
-textile products

Uses banned under the final rule:

-asbestos-cement corrugated sheet
-asbestos-cement flat sheet
-asbestos-cement pipe
-asbestos-cement shingle
-asbestos clothing
-flooring felt
-pipeline wrap
-roof coatings
-non-roof coatings
-vinyl/asbestos floor tile
-automatic transmission components
-clutch facings

-disc brake pads
-drum brake linings
-brake blocks
-commercial and industrial asbestos
-friction products
-sheet and beater-add gaskets (except
-specialty industrial gaskets)
*-all new uses of asbestos**
*-roofing felt**
*-commercial, corrugated, and specialty paper**
*-millboard**
*-rollboard**

** Products which survived the remand and remain banned today.*

CPSC has banned asbestos-containing joint/spackling compound (16 CFR 1304), asbestos-containing emberizing material used in artificial fireplace logs (16 CFR 1305) and some garments for general use (16 CFR 1500.17 (a) (7)).

Q: Would EPA resurrect the ban on certain uses if we could? Are there things still out there that should be banned?

A: We have very little information on the extent of the asbestos-containing product market today. In order to "resurrect" the asbestos ban, we would need to gather data on the size of the current market and the magnitude of current exposures to newly-manufactured/imported products.

Q: Do we know the risks from brake linings? Do we know anything about the exposures?

A: The attached table on asbestos in vermiculite contains 1988 exposure and risk information on consumer and occupational brake repair. In addition, the analysis supporting the 1989 Ban and Phase-out Rule indicates that the general population living in urban areas is exposed to a 1.0×10^{-6} risk just from asbestos released during brake use.

The analysis supporting the 1994 OSHA amendments estimates that pre-rule occupational exposures for the approximately 1,415 employees involved in the manufacture of friction products would be approximately 0.14 f/cc, comparable to the 1988 levels in the vermiculite chart. OSHA further estimated that the rule would reduce exposures to approximately .007 f/cc.

Although the OSHA data may give us some idea of the size of the friction products industry, we would need to update the numbers for consumer and ambient exposures.

Q: How does AHERA relate to the Section 6 ban?

A: The two rules are not directly linked; however, we did not address the installation of new asbestos-containing products in schools under the AHERA rule because we knew we were going forward with the Asbestos Ban and Phase-out Rule. As a result, newly-installed asbestos-containing building materials are not specifically required to be included in a school's asbestos management plan.

Q: Does EPA distinguish between asbestos fiber types for cancer risks? At the 0.1 f/cc level is there any difference in toxicity between asbestos fiber types?

A: No, all fibers are currently considered equal in toxicity in IRIS. The latest research points towards not distinguishing between fiber types.

Q: Has there been a significant change in EPA's risk methodology since the Asbestos Ban and Phase-out Rule was developed?

A: No. In fact we are citing the same risk assessment in the Worker Protection Rule. The cancer potency number is still the same.

Q: What are the NESHAP standards now for releases from manufacture?

A: The applicable sections are 40 CFR 61.142 (Standard for asbestos mills) and 40 CFR 61.144 (Standards for manufacturing.) Both say essentially the same thing:

Discharge no visible emissions to the outside air from these operations or from any building or structure in which they are conducted or from any other fugitive sources, or use methods specified by 40 CFR 61.152 to clean emissions containing particulate asbestos material before they escape to, or are vented to, the outside air.

The NESHAP defines "visible emissions" as "any emissions, which are visually detectable without the aid of instruments, coming from regulated asbestos-containing material (RACM), or from any asbestos milling, manufacturing, or fabricating operation."

Q: What are the risks at those levels for communities which live in the vicinity?

A: The "levels" are those of the no visible emission standard, as stated above. There is nothing beyond the standards in 40 CFR 61.142 and 61.144.

However, the OAQPS has been working along different lines, under CAA, §112; the development of maximum achievable control technology (MACT) standards. After reviewing a variety of asbestos manufacturing and fabricating plants over the past few years, OAQPS is now working on only one asbestos-related industry. OAQPS is developing a MACT standard for asbestos friction products (brakes, clutches.) It will be some time before that standard is completed. (10^{-6} seems

to be the target risk level.)

A survey of asbestos manufacturing plants led OAQPS to the conclusion that emissions from those plants are now well-controlled. Asbestos is now processed by trained people wearing personal protective equipment; the work is done in enclosed areas, with strong exhaust ventilation leading to bag houses. Conservatively, they believe that the bag houses capture 99.9% of emissions, and some industries achieve even greater capture. (Source: Susan Zapata, OAQPS)

On that assumption, there does not appear to be much risk from exposure to fugitive emissions in the surrounding communities.

Q: How out of date is the old 'life-cycle"risk table in the ABPR.

A: EPA would need to determine what asbestos-containing products are still being made.

Q: Why was 1% established as the cut-off level for asbestos in products in the ABPR?

A: EPA wanted to address the major sources of risk from asbestos in products. EPA was not trying to address all sources of risk from asbestos so it looked at both the amount of asbestos and the potential exposure pathways for each product category it considered. The 1% cut-off level was not established as an absolute level below which exposure didn't pose an unreasonable risk to human health or the environment.

Q: Since the number of products with asbestos appears to be increasing and EPA technical people are concerned about what they see as a growing health hazard, why isn't the EPA attempting to reinstate the1989 ban?

A: The Agency's commitment to taking tough regulatory action on asbestos was dramatically weakened by the 1991 court decision which overturned most of the Agency's asbestos ban. The Agency believes the court was wrong and has on-going concerns about asbestos in consumer products. As a result, For this reason, EPA is undertaking a nationwide effort to sample and evaluate a wide range of products to determine if they contain levels of asbestos that pose unreasonable risks to public health. If these concerns are validated, EPA will determine what actions it could take (under the authorities it has left) to ensure the protection of public health.

Q: Why has the EPA decided not to push for labeling of consumer products that your investigators have determined contain asbestos?

A: The agency tried to go beyond labeling when it put its efforts into the product ban as the most effective means to reduce the public's risk from asbestos in products. Once the ban was overturned, the legal hurdles that prevented the ban also stood in the way of labeling requirements. That is why we are pursuing the next line of defense currently available legally -- beginning an survey of individual products evaluation of a wide range of products to assess risk and look at possible actions and the dissemination of consumer information regarding those products.